UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/628,750	07/31/2000	Takashi Hirano	09792909-0391	5303

26263 7590 02/25/2004

SONNENSCHEIN NATH & ROSENTHAL LLP
P.O. BOX 061080
WACKER DRIVE STATION, SEARS TOWER
CHICAGO, IL 60606-1080

EXAMINER	
SANTIAGO, MARICELI	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/628,750	HIRANO ET AL.	
	Examiner	Art Unit	
	Mariceli Santiago	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-12,14-23,25-34,36-44 and 46-78* is/are pending in the application.

4a) Of the above claim(s) *51-78* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-12,14-23,25-34,36-44 and 46-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 July 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Amendment, filed on November 24, 2003, has been entered and acknowledged by the Examiner.

Cancellation of claims 4, 13, 24, 35 and 45 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5, 6, 9-12, 14, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizaki et al. (US 5,443,922).

Regarding claims 1, 2, 10 and 11, Nishizaki discloses an EL device comprising a substrate, an anode formed on the substrate, an organic light emitting layer formed on the anode, and a cathode (Column 52, lines 60-65) formed on the organic light emitting layer, wherein the anode includes a metal belonging to the group V or the group VI of the periodic table at least at a portion of the anode that is in contact with the organic light emitting layer (Column 53, lines 29-40). Nishizaki discloses an EL device wherein the anode was made from tungsten material (Column 53, lines 29-40), which has a reflectance of 62%[1]. It is elementary that mere recitation of a function or property, intrinsically possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Accordingly, the examiner notes that the anode materials disclosed by Nishizaki intrinsically possess the reflectance property of 40% or higher.

[1] Data obtained from http://www.webelements.com

Regarding claims 3 and 12, Nishizaki discloses an EL device wherein the work function of the metal is 4.8 eV or lower (Column 53, lines 29-40).

Regarding claims 5 and 14, Nishizaki discloses an EL device wherein emission light from the organic light-emitting layer is emitted from the side of the cathode (Column 53, lines 49-54).

Regarding claims 6 and 15, Nishizaki discloses an EL device wherein the anode comprises an alloy (Column 53, lines 29-40).

Regarding claims 9 and 18, Nishizaki discloses an EL device wherein the cathode comprises MgAg (Column 53, lines 41-48).

Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizaki et al. (US 5,443,922) in view of Thompson et al. (US 5,861,219).

Regarding claims 8 and 17, Nishizaki discloses the claimed invention except for the limitation of the cathode comprising a layer composed of a metal and a transparent material. However, in the same field of endeavor, Thompson discloses an organic EL device wherein the cathode is comprises a metal (MgAl) and a transparent material (ITO). The transparent material provides protection of the cathode from atmospheric oxidation and also function as an electrical contact layer. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the cathode materials disclosed by Thompson in the EL device of Nishizaki in order to provide a protection layer over the cathode from atmospheric oxidation and also function as an electrical contact layer.

Claims 19-23, 25, 26, 29-34, 36, 37, 40-44, 46, 47 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizaki et al. (US 5,443,922) in view of Ikeda (US 5,940,053).

Regarding claims 19, 22, 30 and 33, Nishizaki discloses an light emitting device having at least an organic light emitting layer, a first electrode providing holes to the organic light emitting layer and a second electrode providing electrons to the organic light emitting layer (Column 52, lines 60-65), wherein the first electrode contains a metal belonging to the group V or the group VI of the periodic table at least at a portion of the first electrode that is in contact with the organic light emitting layer (Column 53, lines 29-40). Nishizaki discloses an EL device wherein the first electrode is made from tungsten material (Column 53, lines 29-40), which has a reflectance of 62%[1]. It is elementary that mere recitation of a function or property, intrinsically possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Accordingly, the examiner notes that the electrode materials disclosed by Nishizaki intrinsically possess the reflectance property of 40% or higher.

Nishizaki fails to disclose the driving and operating elements/components of the active matrix type EL device. However, Ikeda discloses an active matrix type EL device (Fig. 2, Column 5, lines 23-60) comprising scanning lines (151) for selecting pixels, data lines (152) provided with luminance information for driving the pixels, a first transistor (150) connected at a first control terminal with the scanning lines (151), a second transistor (156) connected at a second control terminal with the first transistor (150), and a light emitting device (155) connected with the second transistor (156). The driving elements and arrangement disclosed by Ikeda are considered well known in the art to provide and complete the assembly of an active matrix type EL device. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the driving and operating elements and

arrangement disclosed by Ikeda in the EL device of Nishizaki in order to provide and complete the assembly of an active matrix type EL device.

Regarding claims 41 and 43, Nishizaki discloses an organic EL device having and anode containing a metal belonging to the group V or the group VI of the periodic table at least at a portion of the anode that is in contact with the organic light emitting layer (Column 53, lines 29-40), and a cathode disposed at a position opposing to the anode (Column 52, lines 60-65). Nishizaki discloses an EL device wherein the anode was made from tungsten material (Column 53, lines 29-40), which has a reflectance of 62%[1]. It is elementary that mere recitation of a function or property, intrinsically possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Accordingly, the examiner notes that the anode materials disclosed by Nishizaki intrinsically possess the reflectance property of 40% or higher.

Nishizaki fails to disclose the driving and operating elements/components of the active matrix type EL device. However, Ikeda discloses an active matrix type EL device (Fig. 2, Column 5, lines 23-60) comprising scanning lines (151) for selecting pixels, data lines (152) disposed substantially vertically relative to the scanning lines (151) and provided with luminance information for driving the pixels, a active element (150) controlled by the scanning lines and having a function of receiving luminance information provided from the data lines and a second active element (156) having the function of controlling the current supplies to the EL device (155) in accordance with the received luminance information, the luminance information is taken into the pixels by applying electric signals in accordance with the luminance information to the data lines in a state where the data lines are selected, the luminance information taken in the pixel is maintained to the pixel even after the scanning line becomes no more selected, and the organic EL device maintains light emission at a luminance according to the luminance information (Column 5, lines 23-55). The driving elements and arrangement disclosed by Ikeda are considered well known in the art to provide and complete the assembly of an active matrix

type EL device. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the driving and operating elements and arrangement disclosed by Ikeda in the EL device of Nishizaki in order to provide and complete the assembly of an active matrix type EL device.

Regarding claims 20, 31 and 42, Ikeda discloses an EL device wherein the first transistor (150) and the second transistor (156) are field effect transistors and connected at the second control terminal with a capacitor (153). Claims 20 and 31 are rejected for the same motivation stated above in the rejection of claims 19 and 30.

Regarding claims 21 and 32, Ikeda discloses an EL device wherein the scanning lines (151) and the data lines (152) cross substantially vertical to each other (Fig. 2). Claims 21 and 32 are rejected for the same motivation stated above in the rejection of claims 19 and 30.

Regarding claims 23, 34 and 44, Nishizaki discloses an EL device wherein the work function of the metal is 4.8 eV or lower (Column 53, lines 29-40).

Regarding claims 25, 36 and 46, Nishizaki discloses an EL device wherein emission light from the organic light-emitting layer is emitted from the side of the cathode (Column 53, lines 49-54).

Regarding claims 26, 37 and 47, Nishizaki discloses an EL device wherein the anode comprises an alloy (Column 53, lines 29-40).

Regarding claims 29, 40 and 50, Nishizaki discloses an EL device wherein the cathode comprises MgAg (Column 53, lines 41-48).

Claims 28, 39 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizaki et al. (US 5,443,922) in view of Ikeda (US 5,940,053), and further in view of Thompson et al. (US 5,861,219).

Regarding claims 28, 39 and 49, Nishizaki discloses the claimed invention except for the limitation of the cathode comprising a layer composed of a metal and a transparent material. However, in the same field of endeavor, Thompson discloses an organic EL device wherein the cathode is comprises a metal (MgAl) and a transparent material (ITO). The transparent material provides protection of the cathode from atmospheric oxidation and also function as an electrical contact layer. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the cathode materials disclosed by Thompson in the EL device of Nishizaki in order to provide a protection layer over the cathode from atmospheric oxidation and also function as an electrical contact layer.

Claims 1-3, 5-7, 10-12, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamano et al. (US 5,681,664).

Regarding claims 1, 2, 10 and 11, Tamano discloses an EL device comprising a substrate (1), an anode (2) formed on the substrate (1), an organic light emitting layer (4) formed on the anode, and a cathode (6) formed on the organic light emitting layer, wherein the anode contains a metal belonging to the group V or the group VI of the periodic table at least at a portion of the anode that is in contact with the organic light emitting layer (Column 22, lines 31-39). Tamano discloses an EL device wherein the anode was made from tungsten material (Column 22, lines 29-39), which has a reflectance of 62%[1]. It is elementary that mere recitation of a function or property, intrinsically possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Accordingly, the examiner notes that the anode materials disclosed by Nishizaki intrinsically possess the reflectance property.

Regarding claims 3 and 12, Tamano discloses an EL device wherein the work function of the metal is 4.8 eV or lower (Column 22, lines 29-39).

Regarding claims 5 and 14, Tamano discloses an EL device wherein emission light from the organic light-emitting layer is emitted from the side of the cathode (Column 22, lines 46-50).

Regarding claims 6 and 15, Tamano discloses an EL device wherein the anode comprises an alloy (Column 22, lines 29-39).

Regarding claims 7 and 16, Tamano discloses an EL device wherein the organic light emitting layer has a hole transporting layer for transporting holes injected from the anode (Column 22, lines 1-3).

Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamano et al. (US 5,681,664) in view of Thompson et al. (US 5,861,219).

Regarding claims 8 and 17, Tamano discloses the claimed invention and further acknowledge forming the cathode with multiple layers. Tamano fails to disclose the limitation of the cathode comprising a layer composed of a metal and a transparent material. However, in the same field of endeavor, Thompson discloses an organic EL device wherein the cathode is comprises a metal (MgAl) and a transparent material (ITO). The transparent material provides protection of the cathode from atmospheric oxidation and also function as an electrical contact layer. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the cathode materials disclosed by Thompson in the EL device of Tamano in order to provide a protection layer over the cathode from atmospheric oxidation and also function as an electrical contact layer.

Claims 19-27, 30-38 and 41-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamano et al. (US 5,681,664) in view of Ikeda (US 5,940,053).

Regarding claims 19, 22, 24, 30, 33 and 35, Tamano discloses an light emitting device having at least an organic light emitting layer (4), a first electrode (2) providing holes to the organic light emitting layer and a second electrode (6) providing electrons to the organic light

emitting layer, and the first electrode contains a metal belonging to the group V or the group VI of the periodic table at least at a portion that is in contact with the organic light emitting layer (Column 22, lines 29-39). Tamano discloses an EL device wherein the anode was made from tungsten material (Column 53, lines 29-40), which has a reflectance of 62%[1]. It is elementary that mere recitation of a function or property, intrinsically possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Accordingly, the examiner notes that the anode materials disclosed by Nishizaki intrinsically possess the reflectance property of 40% or higher.

Tamano fails to disclose the driving and operating elements/components of the active matrix type EL device. However, Ikeda discloses an active matrix type EL device (Fig. 2, Column 5, lines 23-60) comprising scanning lines (151) for selecting pixels, data lines (152) provided with luminance information for driving the pixels, a first transistor (150) connected at a first control terminal with the scanning lines (151), a second transistor (156) connected at a second control terminal with the first transistor (150), and a light emitting device (155) connected with the second transistor (156). The driving elements and arrangement disclosed by Ikeda are considered well known in the art to provide and complete the assembly of an active matrix type EL device. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the driving and operating elements and arrangement disclosed by Ikeda in the EL device of Tamano in order to provide and complete the assembly of an active matrix type EL device.

Regarding claims 41, 43 and 45, Tamano discloses an organic EL device having and anode containing a metal belonging to the group V or the group VI of the periodic table at least at a portion that is in contact with the organic light emitting layer (Column 22, lines 29-39), and a cathode (6) disposed at a position opposing to the anode. Tamano discloses an EL device wherein the anode was made from tungsten material (Column 53, lines 29-40), which has a

reflectance of 62%[1]. It is elementary that mere recitation of a function or property, intrinsically possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Accordingly, the examiner notes that the anode materials disclosed by Nishizaki intrinsically possess the reflectance property of 40% or higher.

Tamano fails to disclose the driving and operating elements/components of the active matrix type EL device. However, Ikeda discloses an active matrix type EL device (Fig. 2, Column 5, lines 23-60) comprising scanning lines (151) for selecting pixels, data lines (152) disposed substantially vertically relative to the scanning lines (151) and provided with luminance information for driving the pixels, a active element (150) controlled by the scanning lines and having a function of receiving luminance information provided from the data lines and a second active element (156) having the function of controlling the current supplies to the EL device (155) in accordance with the received luminance information, the luminance information is taken into the pixels by applying electric signals in accordance with the luminance information to the data lines in a state where the data lines are selected, the luminance information taken in the pixel is maintained to the pixel even after the scanning line becomes no more selected, and the organic EL device maintains light emission at a luminance according to the luminance information (Column 5, lines 23-55). The driving elements and arrangement disclosed by Ikeda are considered well known in the art to provide and complete the assembly of an active matrix type EL device. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate the driving and operating elements and arrangement disclosed by Ikeda in the EL device of Tamano in order to provide and complete the assembly of an active matrix type EL device.

Regarding claims 20, 31 and 42, Ikeda discloses an EL device wherein the first transistor (150) and the second transistor (156) are field effect transistors and connected at the

second control terminal with a capacitor (153). Claims 20 and 31 are rejected for the same motivation stated above in the rejection of claims 19 and 30.

Regarding claims 21 and 32, Ikeda discloses an EL device wherein the scanning lines (151) and the data lines (152) cross substantially vertical to each other (Fig. 2). Claims 21 and 32 are rejected for the same motivation stated above in the rejection of claims 19 and 30.

Regarding claims 23, 34 and 44, Tamano discloses an EL device wherein the work function of the metal is 4.8 eV or lower (Column 22, lines 29-39).

Regarding claims 25, 36 and 46, Tamano discloses an EL device wherein emission light from the organic light-emitting layer is emitted from the side of the cathode (Column 22, lines 46-50).

Regarding claims 26, 37 and 47, Tamano discloses an EL device wherein the anode comprises an alloy (Column 22, lines 29-39).

Regarding claims 27, 38, and 48, Tamano discloses an EL device wherein the organic light emitting layer has a hole transporting layer for transporting holes injected from the anode (Column 22, lines 1-3).

Claims 28, 39 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamano et al. (US 5,681,664) in view of Ikeda (US 5,940,053), and further in view of Thompson et al. (US 5,861,219).

Regarding claims 28, 39 and 49, Tamano discloses the claimed invention and further acknowledge forming the cathode with multiple layers. Tamano fails to disclose the limitation of the cathode comprising a layer composed of a metal and a transparent material. However, in the same field of endeavor, Thompson discloses an organic EL device wherein the cathode is comprises a metal (MgAl) and a transparent material (ITO). The transparent material provides protection of the cathode from atmospheric oxidation and also function as an electrical contact layer. Thus, it would have been obvious at the time the invention was made to a person having

ordinary skills in the art to incorporate the cathode materials disclosed by Thompson in the EL device of Tamano in order to provide a protection layer over the cathode from atmospheric oxidation and also function as an electrical contact layer.

Response to Arguments

Applicant's arguments filed November 24, 2003 have been fully considered but they are not persuasive.

In regards to applicant's arguments that the applied prior art references neither teach or suggest the limitation of the anode having a reflectance of 40% or higher, the Examiner respectfully disagree. The Prior art of reference, Nishizaki et al. (US 5,443,922) and Tamano et al. (US 5,681,664), discloses an EL device wherein the anode was made from tungsten material (Column 53, lines 29-40), which has a reflectance of 62%[1]. It is elementary that mere recitation of a function or property, intrinsically possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Accordingly, the examiner notes that the anode materials disclosed by either Nishizaki or Tamano intrinsically possess the reflectance property of 40% or higher.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariceli Santiago whose telephone number is (571) 272-2464. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

MSantiago 2/20/04
Mariceli Santiago
Patent Examiner
Art Unit 2879

NIMESHKUMAR D. PATEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800